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EXAMINER
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/521,686  
Filing Date: September 19, 2005  
Appellant(s): HORSNELL ET AL.

**MAILED**  
OCT 24 2007  
GROUP 2800  
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Joseph M. Butscher  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/3/2007 appealing from the Office action mailed 2/26/2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

GB 2134045 A	Slomianny	08-1984
4,567,570	Peer	01-1986

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slomianny (GB 2134045a) in view of Peer (U.S. Pat. 4,567,570).

***Slominanny discloses:***

- ***regarding claims 1 and 3***, a method and apparatus including a print head comprising a rotatable print array (Figures 5-6) comprising a plurality of print valves (jet orifices), a valve control means in communication with the print array a pulse generating means, in use generating a regular sequence of pulse signals and means for rotating, in use, the print array to predetermined rotation (Page 1 Lines 1 – 14; Lines 48-64)
- the valve control means (control apparatus) comprises: one or more data input lines to receive print data; memory means comprising an array of memory locations to store the received print data, one dimension of the array of memory location being associated with the plurality of print valves (jet orifices) of the rotatable print array and the other dimension of the array of memory locations being associates with a plurality of pre-determined time periods (Page 2, Lines 71 – 80)

- processes the print data in accordance with the predetermined rotation of the rotatable print array (Page 1, Lines 48-64)

***Slominanny does not disclose expressly the following:***

- ***regarding claims 1 and 3***, divides the print data into a plurality of sub-elements, each print data sub-element being associated with a respective print valve and a respective predetermined time period; writes each print data sub-element to the memory location associated with the respective print valve and the respective predetermined time period; sequentially reads one or more print data sub-elements from the memory locations associated with one pre-determined time period; activates the respective print valves associated with the one or more print data sub-elements read; activates the respective print valves associated with the one or more print data sub-elements read and is repeated for a subsequent pre-determined time period for each pulse generated by the pulse generating means

- ***regarding claims 2 and 4***, an apparatus and method that overwrites the memory locations read after the activation of the print valves

***Peer discloses the following:***

- ***regarding claims 1 and 3***, divides the print data into a plurality of sub-elements (Abstract), each print data sub-element being associated with a respective print valve and a respective predetermined time period; writes each print data sub-element to the memory location associated with the respective print valve and the respective predetermined time period; sequentially reads one or more print data sub-elements from the memory locations associated with one pre-determined time period;

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activates the respective print valves associated with the one or more print data sub-elements read; activates the respective print valves associated with the one or more print data sub-elements read and is repeated for a subsequent pre-determined time period for each pulse generated by the pulse generating means (Column 1, Line 65 – Column 2, Line 13; Column 5, Lines 3-35; Column 6, Lines 5-30), for the purpose of driving a slanted print head of a printer with a system having a low component count via the use of a microprocessor and a short processing time via unconventional microprocessor-memory-I/O design and implementation.

- ***regarding claims 2 and 4***, overwrites the memory locations read after the activation of the print valves (Figure 6; Column 5, Lines 3-19), for the purpose of driving a slanted print head of a printer with a system having a low component count via the use of a microprocessor and a short processing time via unconventional microprocessor-memory-I/O design and implementation.

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Peer into the device of Slominanny, for the purpose of driving a slanted print head of a printer with a system having a low component count via the use of a microprocessor and a short processing time via unconventional microprocessor-memory-I/O design and implementation (Column 1, Line 65 – Column 2, Line 13).

**(10) Response to Argument**

**Rejection of claims 1-4 as being unpatentable over Slominanny in view of Peer.**

**Appellant argues that the combination of Slominanny in view of Peer does not disclose the limitation of “sequentially reading one or more print data sub-elements from the memory locations associated with one pre-determined time period”**

Peer discloses an electronic control system for a linearly slanted print head by processing columns of vertically oriented imaging data bits to produce control signals, including writing different equal byte segments of each such column into a RAM memory.

Appellant argues that Peer does not disclose “sequentially reading one or more print data sub-elements from the memory locations associated with one pre-determined time period”. However Peer discloses “new imaging data bits are externally latched and then written into the RAM 81 from the latches 65-68 as directed by an input address pointer  $P_i$ , while data in the RAM 81 is read out from the RAM memory banks 87-90 as directed by an output address pointer  $P_o$ . The output data bits are sequentially latched into the buffer output latches 93-100” (emphasis added). Also in response to a fire signal being applied, the latched data bits within the buffer output latches 93-100 are transferred into the final output latch 101 and the final output latch is enabled to output

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its data bits as control signals for operating the print element drivers (Figures 5-6; Column 6, Lines 13-30).

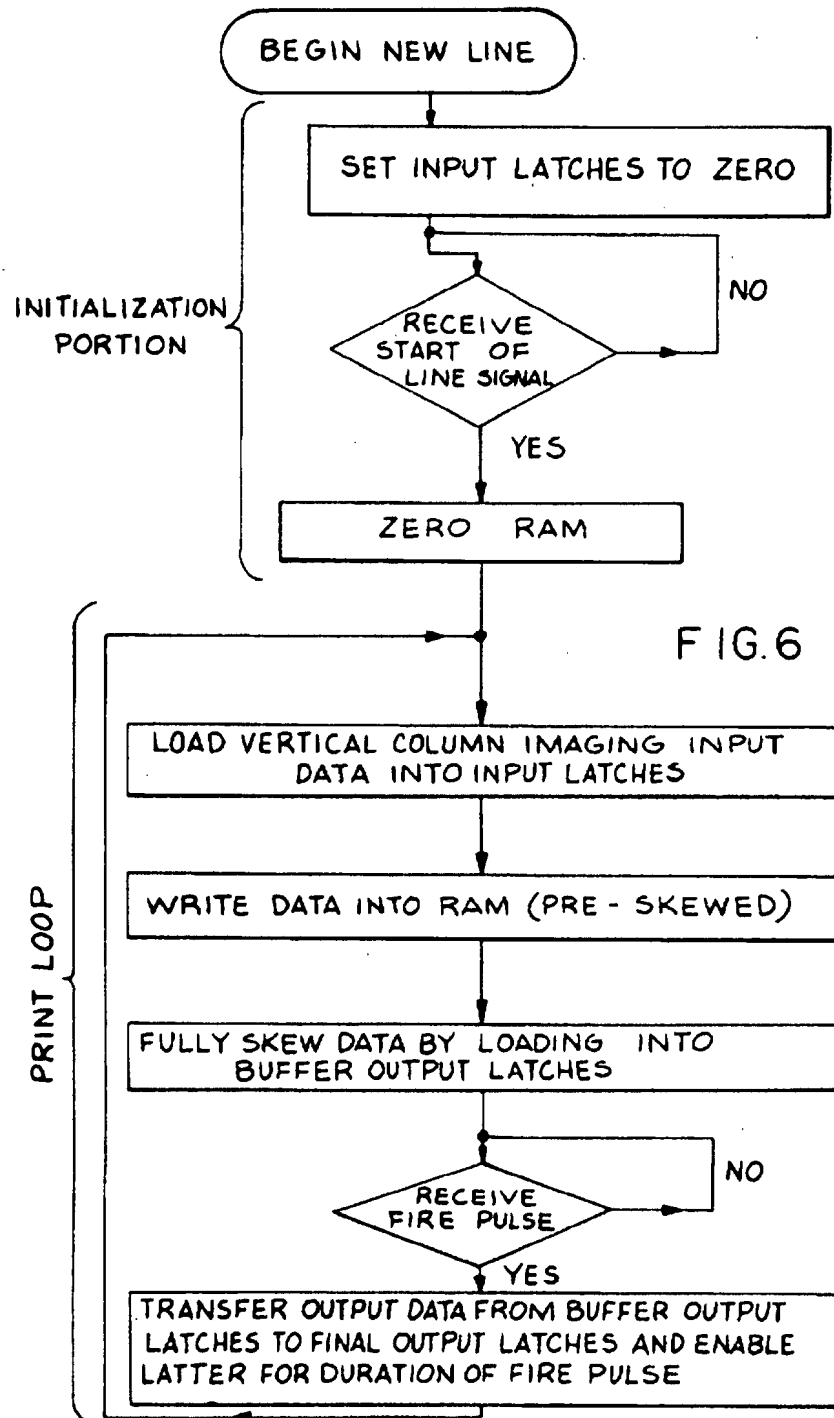
Thus Peer clearly discloses that one or more data bits (data sub-elements) are sequentially read from the RAM (memory) associated with the duration of the fire pulse (pre-determined time). The examiner notes that the language "pre-determined time period" is broad.

**Appellant argues that the combination of Slominanny in view of Peer does not disclose the limitation of "repeating" the sequentially reading step "for a subsequent pre-determined time period for each pulse generated by the pulse generating means"**

Peer discloses a sequence for the program control as shown in Figure 6.



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After initialization portion of the program, the print loop (repeating) is entered at every vertical column. The print loop will continue to be entered at every vertical

column throughout the line of print (pre-determined time) (Column 6, Lines 5-16). The Examiner considers the time it takes to complete the line of print as the pre-determined time period. Again, the Examiner notes that the language "pre-determined time period" is broad.

**Appellant argues that a motivation or suggestion to combining the references has not been properly identified.**

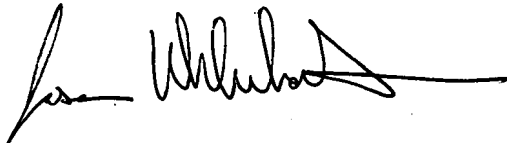
The Examiner disclosed a proper motivation in the Office Action dated February 26, 2007 on page 4. Peer discloses that the matrix printer systems available for driving a print head consisting of slanted or inclined print elements were very complex, requiring a high component count and complicated data handling. Peer designed a data converter system for driving a slanted print head of a matrix printer with a system having a low component count via the use of a microprocessor and a short processing time via unconventional microprocessor-memory-I/O design and implementation (Column 1, Line 65 – Column 2, Line 7). Therefore motivation to combine the references, as provided by Peer, would be to reduce the complexity of a high component count and complicated data handling while continuing to drive a slanted print head of a matrix printer.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



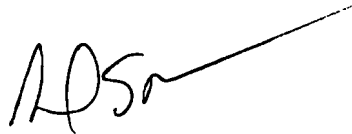
Jason Uhlenhake  
Art Unit 2853  
October 10, 2007



STEPHEN MEIER  
SUPERVISORY PATENT EXAMINER

Conferees:

David Blum



Stephen Meier 